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**DEVELOPING A COMMUNITY HEALTH MODEL
FOR DELIVERING AUDIOLOGY SERVICES**

**by
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APPROVAL PAGE

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THESIS APPROVAL PAGE

This is to certify that the thesis prepared by Meredith Frank
entitled Developing a Community Health Model for Delivering Audiology Services
has been approved by the thesis committee as satisfactorily completing the thesis
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ABSTRACT

Developing a Community Health Model for Delivering Audiology Services

Meredith R. Frank

Hearing loss is a leading cause of disability in the United States. However, individuals with hearing loss often do not receive appropriate audiologic care due to barriers such as lack of health care professionals, poor public and professional awareness, limited resources, geographical isolation, and lack of transportation. One emerging healthcare model proposed to address these barriers is use of community health workers (CHW). A CHW is a trained public health worker who shares important similarities with the patients he/she serves. These similarities can include language, ethnicity, geographical location, and life experiences. This study explored whether CHWs are a favorable approach to extending access to care from the perspective of audiologists.

One focus group and two interviews with Maryland-licensed audiologists were conducted. Participants were asked questions regarding their experiences working with clients in their work setting and their experiences with community health and CHWs. Transcripts of the focus group and interviews were analyzed and themes were identified.

Results revealed six core themes: issues for the patient, interpersonal issues, issues for the clinician, alternative health care models, professional scope and structure, and health system factors. The interviews revealed two distinctly opposite opinions regarding CHWs in audiology, one positive and one negative.

Results of this study reveal the key areas of concern and opportunity regarding use of CHWs in audiology. Additionally, two divergent opinions about CHWs in audiology were examined. A successful model using CHWs would address the issues raised in the focus group and involve stakeholders to create a model that is appealing, implementable, scalable, and sustainable.

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CHAPTER 1: INTRODUCTION

Hearing loss is a chronic disease and is globally, the most prevalent disabling condition (Mathers, Fat, Boerma, & World Health Organization [WHO], 2008). On a national basis, it has been reported that approximately 37.5 million American adults claim to have some trouble hearing (Blackwell, Lucas, & Clarke, 2012). Despite this large number of individuals with hearing loss in the United States, most of these individuals have not sought treatment for their hearing loss. Only approximately 22% of American adults who could benefit from a hearing aid receive one (Margolis & Morgan, 2008). Many of these alarming statistics are due to barriers preventing access to audiologic care. These barriers include lack of health care professionals, poor public and professional awareness, limited resources, geographical barriers, and transportation barriers.

A community health worker (CHW) is a trained public health worker who shares important similarities with the patients he/she serves. These similarities can include language, ethnicity, geographical location, and life experiences. In other fields, CHWs have been used to provide health education and counseling, to help patients navigate the healthcare system, and to perform screenings such as cancer screenings.

One emerging healthcare model which may help alleviate some of the barriers to providing hearing healthcare for these underserved populations is the use of CHWs in audiology. The use of CHWs may help successfully bridge the gap that currently exists between those individuals with hearing losses and hearing health care professionals.

This qualitative research study makes use of focus groups and interviews to obtain audiologists' opinions about community health workers. Participants are Maryland-licensed

audiologists who primarily work in private practice and small clinics. For the focus group, audiologists were drawn from the Baltimore metropolitan area and surrounding suburbs. Two follow-up interviews were conducted with audiologists from the initial focus group to continue the discussion in a forum where they could express their opinions without interruption. The aim of this study is to explore whether use of community health workers (CHWs) is a favorable approach to extending access to hearing health care from the perspective of audiologists.

CHAPTER 2: LITERATURE REVIEW

Audiology is a specialty area of healthcare that addresses hearing, balance, and related disorders (Gelfand, 2009). Audiologists identify, diagnose, treat, and monitor pathologies of the auditory and vestibular systems. The manner in which the various types of audiological services are provided may differ; however, audiologists deliver their services via a “gold standard” model of care. This model typically entails repeated visits to a specialty provider and the costs incurred by the patients are primarily out-of-pocket. In order to understand the best delivery options for audiology services, it is helpful to understand the larger model of healthcare.

Throughout the world, the manner in which individuals are provided with healthcare differs. The ultimate goal of these healthcare systems is to provide organized healthcare to all citizens (Pawlson, Glover, Petrosyan, & Anderson, 2004). According to Wendt, Frisina, and Rothgang (2009), the three primary dimensions of a healthcare system are financing, health service provision, and regulation or governance. The two primary models of healthcare utilized worldwide are socialized, or public, healthcare and private healthcare. These models will be discussed below.

Socialized healthcare is defined as a system in which medical care is provided for all citizens through government regulation and taxation of the population (Stedman, 2004). In this model, the government either completely controls all facets of healthcare, or the government ensures that all citizens are provided with a healthcare plan by financing coverage (Pawlson et al., 2004). The majority of European countries have some form of socialized or nationalized health coverage. Great Britain and Norway are examples of countries in which the government has complete control over all aspects of healthcare. In contrast, Germany and France have a

system of socialized healthcare in which the government funds specific healthcare plans to guarantee that all citizens receive coverage. In these systems of healthcare, medications, hospital fees, medical procedures, maternity benefits, and physician and specialist fees are covered by the citizens' insurance plans (Pawlson, et al., 2004). Services are typically provided at state-based facilities (Wendt et al., 2009).

In a private healthcare model, the individual, rather than the government has a greater amount of control over his or her healthcare, but is also financially responsible for services rendered (Stedman, 2004). Healthcare is provided by insurance companies who require monthly payments for health services, co-payments, and deductibles (Pawlson et al., 2004). Insurance can be provided through one's employer or can be purchased privately. Therefore, the role of the government is reduced in this system; instead, the healthcare company and/or patient bear the primary responsibility for services.

The amount of coverage for various health procedures or visits to hospitals or physicians varies across plans. Services are typically provided at private for-profit, non-profit, and state-based facilities (Wendt et al., 2009). This is the healthcare model employed in countries such as the United States and South Korea. According to the Centers for Disease Control and Prevention (2014), 63.6% of Americans under the age of 65 years reported that they received healthcare from a private insurance company. Therefore, the majority of the population of the United States receives healthcare via the private model.

Though there is a clear distinction between these two primary models of healthcare, often a fusion of these two systems exists. The Medicare and Medicaid programs in the United States are clear examples of this fusion. These programs are government-funded and controlled, and

there are certain eligibility requirements that are based on either age or financial status (Pawlson et al., 2004). For example, to be eligible for Medicaid, individuals must be 18 years-old or younger, disabled, and/or meet specific financial requirements, while individuals must be 65 years-old or older to qualify for Medicare.

Both traditional models present challenges to both medical providers and patients. Some of these challenges include access to and financing of healthcare (Pawlson et al., 2004). Access to healthcare is a challenge for both models. In the private model, healthcare disparities exist due to differential access to healthcare as coverage is not mandated for all citizens, resulting in populations of uninsured individuals (Adepoju, Preston & Gonzales, 2015). Often the uninsured are members of minority racial/ethnic groups and/or low-income individuals (Adepoju et al., 2015). Additionally, due to minimal government control in the private healthcare model, medical providers have greater capacity to select which patient population they wish to serve. For example, providers may decide to accept patients with specific private insurance companies or to reject patients participating in Medicare (Pawlson et al., 2004). Furthermore, private insurance companies can elect to deny coverage to individuals with pre-existing conditions or charge them more for coverage as the companies assume these patients will be costlier to insure. Conversely, in the socialized healthcare model, the goal is equal medical care for all. Therefore, individuals may encounter limited time with physicians or long “wait-lists” for certain medical procedures as there may be too few state-run facilities and providers to accommodate the needs of all citizens (Pawlson et al., 2004).

Financial responsibility also presents challenges for both systems. In the private healthcare model, typically, a segment of healthcare costs is covered by the insurance company while the patient is responsible for the remainder of costs. Additionally, patients are responsible

for insurance premiums and for co-pays for routine visits or visits to specialists. These costs are determined by the insurance company and they often prevent individuals from seeking necessary medical services (Pawlson et al., 2004). In the socialized healthcare model, healthcare services are paid through taxation of the population, and providers are reimbursed at a rate determined by the government (Pawlson et al., 2004). This system may impact the quality of care that individuals receive if the provider does not feel financially motivated to provide excellent care (Pawlson et al., 2004).

As the focus of this paper is the healthcare system in the United States, the primary emphasis of this literature review will be on private healthcare and its accompanying challenges. In the United States, access to physicians is traditionally restricted to university-affiliated medical centers and private practice providers with specialists often located in major urban centers (Katzman et al., 2016). Primary care practitioners refer patients with needs that fall beyond their scope of knowledge or expertise to a specialist or even a super-specialist (Arora, Kalishman & Dion, 2011). In this traditional healthcare model, medical providers have customarily operated in isolation with little communication among specialists (Arora et al., 2011). Often it is difficult to bridge the gap between primary care clinicians and specialists. Several researchers have reported that medical knowledge is not easily shared as professionals work within their own area of expertise and are not afforded the opportunity to learn from one another to find the best solution for each patient (Katzman et al., 2016; Sheehan, Robertson & Ormond, 2007).

In order to meet the existing challenges in the private healthcare model, there has been a recent substantial change to the healthcare model employed in the United States, which is the Patient Protection and Affordable Care Act (ACA) of 2010. The goal of ACA was to decrease

the number of uninsured Americans by expanding public and private insurance coverage and decreasing the cost of healthcare, specifically out-of-pocket costs for individuals. Additionally, the law required that insurance companies cover all individuals and offer comparable insurance rates regardless of pre-existing conditions or sex (Patient Protection and Affordable Care Act, 2010) (Patient Protection and Affordable Care Act, 2010). With the advent of ACA, an estimated thirty-two million newly insured individuals entered into the healthcare system in 2014 (Arora et al., 2011). Many of these individuals previously had little to no access to healthcare and presented with a host of chronic diseases (Arora et al., 2011). Under the current Trump administration, there are ongoing discussions about the changes to the ACA; however, these discussions have not resulted in any legislative action at the present time.

In the United States, chronic diseases are the leading cause of death and disability and 75% of healthcare costs are spent on preventable disease (Rabarison, Timsina & Mays, 2015). This situation has highlighted the need for cost-effective, accessible healthcare models that can serve the numerous medical needs of this underserved population. Given the advantages and disadvantages of the traditional healthcare models discussed above, it is apparent that these models are not optimally serving the needs of individuals, specifically those with chronic disease.

In order to address the needs of this underserved population, alternative models of healthcare have been developed and employed that make use of a holistic approach to patient care. A recent development in healthcare is using an interdisciplinary approach which relies on inter-professional collaboration. The patient is evaluated by a team of professionals and the findings of each specialist are shared with members of a treatment team prior to diagnosing a patient or making recommendations (Jessup, 2003; Sheehan et al., 2007). The treatment team

may continue to meet and discuss developments in order to create a treatment plan that is holistic and appropriate for each individual (Choi & Pak, 2006). The use of healthcare approaches involving individuals from multiple disciplines has increased as providers attempt to elevate patient satisfaction, mitigate the rising costs of medical treatment, and create stimulating working environments for practitioners (Choi & Pak, 2006; Jessup, 2003).

The community health model is an alternative healthcare model that makes use of this interdisciplinary approach. Community health, a field of public health, encompasses the health status of individuals living in a particular area and the actions taken to protect and improve the health of those residents. These actions include health promotion, health protection, and health services (Green & McKenzie, 2002). Health promotion encompasses educational and social measures to help individuals advance their health and prevent disease. Health protection involves implementing laws and policies aimed at improving health that are approved at the community level. Finally, health services include the organization of all resources necessary to serve the healthcare needs of the community (Green & McKenzie, 2002).

The community health worker is a key frontline actor in any successful community health initiative. A community health worker (CHW) is defined as a public health worker who shares important similarities with the patients he/she serves (Kyounghe et al., 2016). These similarities include ethnicity, language, geographical location, and life experiences. The similarities between the CHW and the patient are important as the CHW is uniquely aware of the social and societal factors that impact the patient's health status, his/her access to healthcare, and attitudes toward and perception of healthcare. CHWs provide health education and counseling, help patients navigate the healthcare system, manage care, and provide social services and support (Verhagen, Steuneberg, de Wit & Ros, 2014). The use of CHWs has been found to increase participation in

programs that combat chronic disease (Kyounghe et al., 2016). Additionally, programs utilizing CHWs have been found to be cost effective and save healthcare costs (Kyounghe et al., 2016). This evidence clearly supports the effectiveness of CHWs within the community health model.

Since the 1960's the community healthcare model has been successfully implemented in the case of management of chronic disease, specifically among racial and ethnic minority groups (Kyounghe et al., 2016). For example, the community health model and CHWs have been used in programs to manage health conditions such as cancer, diabetes, hypertension, asthma, nutrition and cognitive and mental disorders (Kyounghe et al., 2016; Verhagen, et al., 2014). To further understand the potential opportunities for this approach to healthcare and the role that CHWs play, community health programs for cancer prevention and the management of diabetes and hypertension will be further examined.

Community health efforts for cancer prevention come primarily in the form of cancer screenings. A systematic review of cancer prevention programs found that community-based programs that involved CHWs showed increased screening rates for breast, cervical, and colorectal cancers (Kyounghe et al., 2016). Many of these programs included education and counseling sessions led by CHWs that were specifically tailored to the target population's culture and social barriers. Kim and colleagues speculated that the increased rate of participation in cancer screenings occurred because participants viewed CHWs as their allies; therefore, the health care system seemed less daunting.

Recently, a study conducted by Filippi and colleagues (2016) examined the perceptions of colo-rectal cancer screenings in the American Indian population. These researchers employed focus groups, which are a commonly used qualitative research method that makes use of group

interviews and discussion, to examine this cultural group's perception of these screenings. The results of the focus group revealed that lack of knowledge of the risk of colo-rectal cancer, fear of the screening procedure, transportation concerns, and lack of quality care were all barriers to participation in screenings. Participants in the focus groups suggested that simple, culturally appropriate outreach material in either print and/or video format could increase participation in screenings. Participants also highlighted the need for education and outreach efforts to be carried out by members of their community, thus creating a sense of kinship and trust (Filippi et al., 2016).

Another example of CHWs' role in community health is participation in programs designed to diagnose and manage diabetes and hypertension. These programs make use of peer-lead education groups, screenings, and case management. For example, researchers reported that community health programs used peer-led groups to promote physical activity in women with cardiovascular disease (CVD) risk factors, while others held weekly groups to promote diabetes self-management (Kyounghe et al., 2016). In a study by Prezio and colleagues (2013), CHWs arranged appointments with physicians and assisted with medication refills for a population of uninsured Mexican Americans with diabetes. Thompson and colleagues (2015) employed Latino CHWs to perform screenings for diabetes in a community of migrant workers. The researchers reported that the CHWs positively influenced clinical outcomes and healthy behaviors in individuals at risk for diabetes. Thus, the team concluded that CHWs are effective educators, motivators and advocates.

In summary, the evidence from these studies suggests that with proper training, CHWs can independently screen at-risk populations and support persons in self-management of chronic

diseases appropriately and accurately. Secondly, the involvement of CHWs in healthcare results in better health outcomes for underserved populations.

Community Health Workers and Audiology

Based on the evidence from the aforementioned disciplines, CHWs could be of great assistance in education and counseling, case management, performing screenings, and breaking down barriers to healthcare by serving as trusted allies. These types of skills would be integral in a community healthcare model for the field of audiology. Hearing loss is a chronic disease and is globally, the most prevalent disabling condition (Mathers et al., 2008). Globally, 360 million people have a disabling hearing loss. This is defined as a loss greater than 40 dB HL in the better ear in adults and 30 dB HL in the better ear in children (WHO, 2015). Additionally, the WHO hypothesizes that approximately half of all cases of hearing loss could be averted through preventative healthcare (WHO, 2015). Untreated hearing loss has negative functional, social, emotional, and economic impacts on the individual (WHO, 2015). A leading hypothesis suggests that age-related hearing loss can lead to cognitive decline, social changes, and physiologic changes in the brain (Lin & Albert, 2014).

On a national basis, it has been reported that approximately 37.5 million American adults claim to have some trouble hearing (Blackwell et al., 2012). Despite the large number of individuals with hearing loss in the United States, most of these individuals have not sought treatment for their sensorineural hearing loss. Only approximately 22% of American adults who could benefit from a hearing aid receive one (Margolis & Morgan, 2008). Additionally, only 30% of the population of hearing impaired adults aged 70 and older who could benefit from hearing aids have ever used them (NIDCD Epidemiology and Statistics Program, 2016).

Many of these alarming statistics are due to lack of access to audiologic care on a worldwide basis. Approximately 80% of people with hearing loss live in developing countries where audiologic care is limited or nonexistent (Fagan & Jacobs, 2009). In developing countries, the average ratio of audiologists to the general population is between one for every half million people to one for every 6.25 million people (Fagan & Jacobs, 2009). In developed countries, the average ratio is one for every 20,000 people (Goulis & Patuzzi, 2008). In the United States, it was estimated that 8 million people who needed to have their hearing tested did not have this testing performed (Margolis & Morgan, 2008). By 2050, this number is projected to increase to 15 million. In summary, there are numerous barriers on a global and national level to providing adequate hearing healthcare to these underserved populations. These barriers include lack of health care professionals, poor public and professional awareness, limited resources, geographical barriers, transportation barriers, and natural barriers such as severe weather (Swanepoel et al., 2010).

One emerging healthcare model which may help alleviate some of the barriers to providing hearing healthcare for these underserved populations is the use of CHWs in audiology. The use of CHWs may help successfully bridge the gap that currently exists between those individuals with sensorineural hearing losses and hearing health care professionals. At present, there is not an established model for the use of CHWs in the field of audiology. However, there are two current pilot programs in which audiologic assistants have been used for intervention on a community level. These two models are The Baltimore HEARS Program and a community-based audiologic rehabilitation program developed by Nicole Marrone, Ph.D., at University of Arizona.

The Baltimore Hearing Equality through Accessible Research and Solutions (HEARS) (Nieman et al., 2016) is a clinical research trial that was designed to provide “affordable, accessible, and effective hearing health care to low-income, minority adults.” This program is sponsored by Johns Hopkins University and is led by Frank Lin, M.D., Ph.D., and Carrie Nieman, M.D., MPH. The trial’s participants consisted of 15 older adults with a clinically significant hearing loss (mild hearing loss or greater) and a communication partner. These participants were primarily low-income, minority adults (majority African-American). The communication partners were individuals who spoke with the participants daily. The intervention was three-tiered and included a hearing screening, the delivery of and orientation to an over-the-counter listening device, and an education and counseling session. As the goal of this intervention is to be community-based, the orientation, education, counseling, and all informative brochures were culturally and linguistically appropriate for the target audience. This intervention was provided by a single individual trained in audiology and otology; however, in future interventions, this provider will be a CHW. Several measures were taken at baseline and 3 months following the intervention to evaluate participants’ self-efficacy, hearing handicap, socio-emotional function and health-related quality of life.

Following the intervention, researchers saw improvement in participants’ depression and hearing handicap scores (Nieman et al., 2016). These results imply that this intervention was helpful and useful to participants. Based out of the experience and results of this clinical research trial, a 501(c)(3) non-profit, Access HEARS, has been established to carry out this community-based audiologic intervention model. Currently, CHWs who will ultimately become integral members of this intervention, are being trained and will begin implementing the intervention as a research investigation in 2017.

“Reducing Disparities in Access to Hearing Healthcare on the U.S.-Mexico Border,” is a community-based pilot program developed by Nicole Marrone, Ph.D. and her team to identify untreated hearing loss in the Hispanic population. The goals of this program are to identify barriers to healthcare in this population, develop culturally and linguistically relevant materials, and test the efficacy of a CHW based intervention model for individuals with hearing loss (Ingram et al., 2016). This program targets individuals living in rural communities in the American southwest, particularly along the U.S.-Mexico border, who are underserved and face health disparities. Individuals with hearing loss who are identified through the program are placed in Spanish-language community-based audiologic rehabilitation groups lead by CHWs (Ingram et al., 2016).

Because there is no currently established model for the use of CHWs in audiology, one successful way to explore the development of their role in this profession is to conduct a focus group with hearing healthcare professionals. As previously mentioned, focus groups are “a form of group interview that capitalizes on communication between research participants in order to generate data” (Kitzinger, 1995, p. 299). Typically, an audiology-based focus group would involve professionals working in a variety of aspects of practice who are “stakeholders” in establishing the potential role of CHWs in this profession. The advantage of including audiologists from a broad range of work settings in this focus group would be to capture of the wide scope and breadth of the field. These work settings could include hospitals, speech and hearing centers, private practice, research facilities, and universities.

As this project is an exploratory look at the use of CHWs, we are proposing conducting this study on a small scale. Specifically, our focus group will only consist of licensed

audiologists in the state of Maryland. Audiologists who primarily work with adults in private practices, community-based speech and hearing centers, and hospitals will be recruited.

The aim of the current study is to explore whether CHWs are a favorable approach to extending access to care from the perspective of audiologists. The design of a successful community-based model for audiologic care will grow from the emergent themes raised during the focus groups. The goal is to integrate lessons learned from the focus groups so that clinician's needs and concerns are taken into account in the future development of a community-based audiological intervention.

CHAPTER 3: METHODS AND MATERIALS

Rationale

This is a qualitative research study that made use of focus groups and interviews to obtain audiologists' opinions about the role, if any, of community health workers (CHW) in audiology. A qualitative research design is appropriate in this instance as the goal of the study is to explore subjective opinions regarding CHWs. The experiences and opinions expressed by the participants in the focus group provide the source of the data analysis.

Focus groups create several lines of communication, creating an environment where clinicians can draw upon their shared experiences. This encourages interaction among the group members rather than sole interaction with the moderator. For this study, this design is preferable to that of a one-on-one interview, as group dynamics allow the interaction among clinicians to dominate, creating conversations that the moderator may not have been able to originally facilitate. Follow-up interviews were undertaken as necessary to probe different opinions more thoroughly.

Participants

For this study, one focus group and two interviews were conducted. Approval was obtained from Towson University's Institutional Review Board (IRB) prior to data collection. A copy of this approval is located in Appendix A. Participants were Maryland-licensed audiologists who primarily worked in private practice and in Ear, Nose and Throat (ENT) physicians' offices. Adults greater than 22 years of age who were licensed to practice audiology in Maryland were welcome to participate. There were no gender restrictions for participation. Emails were sent to alumni from Towson University's Doctor of Audiology Program and to local facilities

throughout the state for the purpose of recruitment. Participation was completely voluntary and all responses that came from the focus groups were kept confidential. Informed consent was obtained from each participant prior to participation in the group.

Eight audiologists attended the focus group. Table 1 contains demographic information for the participants, including work setting, title, and years in practice. Approximately 63% of participants worked in private practice, 25% worked in an ENT office, and one participant, representing 12.5%, worked in a university setting. Two follow-up interviews were conducted with two individuals from the focus group whose opinions represented the two extreme viewpoints on CHWs, largely positive and largely negative. Interviews were conducted with participants F and G.

Participant G was the interviewee in Interview A. Participant G is a private practice owner who graduated with her Au.D. in 2005 and has been a practicing clinician for 12 years. Participant G owns a private practice in Carroll County, Maryland. Table 2 contains demographic information for Carroll County obtained from the U.S. Census Bureau (2015). This practice opened in 2007 and currently, there are three audiologists, including participant G, on the staff. The primary services offered by practice include diagnostic hearing testing, hearing aid evaluations, fittings and repairs, vestibular assessment, electrophysiologic testing, and auditory processing evaluations. Services are offered for both adult and pediatric patients.

Participant F was the interviewee in Interview B. Participant F is a private practice owner who graduated with his Au.D. in 2007 and has been a practicing clinician for 10 years.

Table 1			
<i>Demographic Information for Focus Group Participants</i>			
Participant	Practice Setting	Title	Years in Practice
A	Private Practice	Practice Owner/Audiologist	7
B	ENT	Director of Audiology/Audiologist	8
C	University	Assistant Professor	0
D	Private Practice	Practice Owner/Audiologist	23
E	ENT	Audiologist	3
F	Private Practice	Practice Owner/Audiologist	10
G	Private Practice	Practice Owner/Audiologist	12
H	Private Practice	Practice Owner/Audiologist	5

Note. Participant C has 0 years in practice as clinician and 7 as a clinical researcher.

Table 2
Demographic Information for Harford and Carroll Counties as Reported by U.S. Census Bureau 2015 Report

Statistic	Harford County	Carroll County
Population	251,290	167,627
Median Household Income	\$80,465	\$85,385
Race & Hispanic Origin		
White alone	80.3%	92.6%
Black or African American alone	13.6%	3.9%
Hispanic or Latino	4.3%	3.2%
White alone, not Hispanic or Latino	77.0%	89.9%
Education		
High school graduate or higher, 25 years+	92.9%	92.1%
Bachelor's degree or higher, 25 years+	33.8%	33.1%
Age		
Persons under 5 years	5.5%	4.9%
Persons under 18 years	22.7%	22.1%
Persons 65 years+	15.1%	15.8%

Note. Top three races and Hispanic origin listed per county.

Participant F owns a private practice in Harford County, Maryland. Table 2 contains the same demographic information for Harford County reported by the U.S. Census Bureau (2015) as previously described for Carroll County. This practice opened in 2008, and currently, there are 4 audiologists, including participant F on staff. The primary services offered at the practice include diagnostic hearing testing, hearing aid evaluations, fittings and repairs, vestibular assessment, and electrophysiologic testing. Services are offered for both adult and pediatric patients.

Focus Group Session

Participants attended a focus group at Towson University's Institute for Well-being (IWB) which lasted approximately one and a half hours. During the focus groups, the moderator asked the participants questions regarding their experiences working with clients in their work setting as well as questions regarding their experiences with community health and community health workers. A copy of the focus group guide and questions is provided in Appendix B. The role of the moderator was to facilitate conversation, but also to let it occur organically. If the conversation steered far off the topic, the primary moderator intervened and attempted to re-direct the conversation back to the main topic.

In the group, there was a primary moderator (the primary investigator), a secondary moderator, and a note-taker who took notes on the general themes discussed and nonverbal aspects of the discussion. The entire session was audio-taped for further analysis following the sessions.

Interviews

Based on the range of opinions at the focus group, we purposively sampled two individuals for in-depth interviews. Each interview consisted of the primary investigator and one participant (interviewee). Interview A was conducted at Towson's IWB and lasted approximately one hour. Interview B was conducted over the phone and lasted approximately 45 minutes. Separate sets of questions were developed for each interview following a careful analysis of the transcripts from the focus group. Copies of these questions are provided in Appendices C and D. The purpose of the follow-up interviews was to obtain a record of each interviewee's opinions regarding CHWs in a forum in which they could express themselves without interruption. The questions were posed by the primary moderator and the interviewee was free to respond for as long as she/he preferred. At times, conversation veered away from questioning and organic conversation occurred. Both interviews were audio-taped for further analysis following the sessions.

Analysis

The audio-taped discussion for the focus group and the interviews were transcribed. The primary investigator (M.F.) performed a close-reading of the transcripts and began to catalogue salient themes or "categories" discussed by the participants. From the themes identified in the initial close reading of the document, a codebook was developed to define terms that could be used to code all segments of the transcript. Each code paraphrased or summarized the original segment, and a clear definition was provided for each code.

In the second phase of coding the transcripts, two researchers (M.F. and P.K.) independently applied the codes to all segments of the transcripts. The assignment of codes

throughout the transcripts was compared and inconsistencies were discussed with the research team. Following discussion, the codebook was modified as necessary to reach consensus, and a final set of codes was agreed upon. This final set included codes that were not included in the first analysis. A final round of close reading and coding was performed independently by two researchers (M.F. and P.K.) with the final set of codes. Coding was used as a method to categorize the data into patterns that served as the basis for data analysis and discussion. These codes will be further discussed in the results section.

CHAPTER 4: RESULTS

The results section is divided into two major sections focusing on: 1) the focus group and 2) interviews A and B. Within each section, outcomes of each session will be described and corresponding codes and analysis will be discussed. This same structure will be applied in the discussion section.

Focus Group

Focus group data was analyzed in the manner described in the methods and materials section. Following initial analysis, 13 codes were developed. Subsequent to discussion between the research team, 15 codes were finalized and agreed upon. Table 3 contains each code, a description or explanation of the code, and an exemplary quotation that corresponds with each code.

Upon completion of the analysis of the transcription and the development of codes, it was determined that two structured interviews with participants F and G would be conducted in order to obtain a deeper understanding of their opinions regarding CHWs and audiology. These participants were chosen due to their strong opinions and attitudes surrounding this topic. Responses from participant G were excited and positive, while responses from participant F had a distinctly hesitant, negative tone. These interviews attempted to capture the perspectives at either end of the continuum of opinions presented during the focus groups.

Table 3

Focus Group Codes, Explanations and Quotations

Theme	Code	Explanation	Exemplary Quotation
Issues for the Patient	Financial Access	Expression of patient experiences of difficulty in obtaining quality and appropriate audiologic care due to lack of financial resources.	"If they can't get that 500-dollar assistance... then they don't get hearing aids and that's all there is to it."
	Geographical Access	Expression of patient experiences of difficulty in obtaining quality and appropriate care due to geographic location or lack of transportation.	"In certain areas when there's a bit of a distance to get to the VA, there's a whole lot of veterans who are above a certain age bracket who just say, 'I know I can get them for free but I don't want to go all the way down there.'" "...they don't seem to recognize just how valuable their hearing is. Maybe culturally we accept that if I'm older, it's just what happens...hearing health is something to be valued and preserved, maybe that idea hasn't even sparked yet for some people."
	Lack of Health Literacy	Expression of concerns over lack of health literacy in general population and how this contributes to reduced use of hearing aids.	
Interpersonal Issues	Lack of Motivation	Expression of lack of patient motivation to obtain hearing aids and quality and appropriate audiologic care.	"...mostly veterans and they have free hearing aids, but still when you tell them they have hearing loss, they're like nah, I don't need any, I'm fine like this."
	Relationship Building	Description of how to build relationships with patients, importance of these relationships.	"We efficiently build their trust and communication and take them from point A to point B, and maybe even all the way to point Z, which is they walk out the door with hearing aids."
Issues for Clinician	Effective Outreach	Description of current outreach or services provided outside the clinic that the clinician deems successful, either financially or in ability to reach underserved populations.	"We're having luncheons...we have people on staff, certain patient advocates...we've tapped some of these people to come and they're very tech-savvy."
	Ineffective Outreach	Description of current outreach or services provided outside the clinic that the clinician deems unsuccessful, either financially or in ability to reach underserved populations.	"Most of the time at a health fair for hearing screenings, the first thing they do is hand you their hearing aid and say fix it. That happens a lot."
	Financial Concerns	Expression of lack of financial resources to take on additional responsibilities or sustain current ventures.	"We're a private practice, we have to survive."
	Time Concerns	Expression of lack of time on part of clinician to take on additional responsibilities or sustain current duties.	"You have to set aside that time, and know, you're not going to be in the office that day. The busier you are, the harder it is to get that time out of the office to set aside."
Alternative Healthcare Models	CHW Opportunities	Description of opportunities for CHWs within the field of audiology.	"You can utilize them to provide these educational seminars on the importance of hearing health care while we're seeing patients."
	CHW Limitations	Description of limitations of CHWs within the field of audiology.	"The CHW that is not profit, let's say a government worker, cannot work in a private practice."
	Lack of Awareness of CHW and Community Health	Expression of confusion over concepts of CHWs and community health.	"Could you clarify, do they work with the community or for the community? Like is it a non-profit government type position?"
Professional Structure and Scope	Concerns for Field of Audiology	Expression of nervousness, apprehension about the future direction of the field of audiology.	"I'm very concerned with the new regulations with the new move to getting rid of medical waiver and clearance." "I wish people in the field of audiology could flip their mindset, and stop thinking we're all kind of scrambling for a very small number of people who need our services and flip it and say, everybody needs our services."
	Opportunities for Field of Audiology	Expression of excitement, chance for growth in the field of audiology.	
	Audiology Assistant Role	Discussion of audiology assistant role and corresponding rules and regulations.	"...things that are being described sounds more like you should hire an audiology assistant to do that stuff, as opposed to, community health worker."

Interviews

Following analysis of Interviews A and B, new codes were developed in addition to those used in the focus group in order to capture new themes raised during the interviews. These codes, an explanation of each, a description of each, and an exemplary quotation that corresponds to each code are contained in Table 4.

Table 4

Interview Codes, Explanations, and Quotations

Theme	Code	Explanation	Exemplary Quotation
Health System Factors	Medicare Issues	Expression of frustration over Medicare rules and regulations that impact clinician's ability to provide services.	"The ridiculousness of what Medicare causes us to jump through with PQRS, it's all just ways to penalize people and take a cut."
	Medical System Challenges	Expression of frustration regarding current medical system structure and regulations.	"It is such a rare experience for people to be happy in their health care experience."
Issues for Patient	Societal or Family Structure Issues	Discussion of issues such as incarceration and foster care system that impact the patient's ability to obtain proper medical care.	"...parents are in and out of jail...children are being cared for by foster families...and the enormity of what the family is dealing with on an everyday basis doesn't allow them to consider a surgery for their child."
	Cultural or Language Barrier	Discussion of language barriers or culture differences that impact the patient's ability to obtain proper medical care.	"But if there is no translator, then we typically have the experience of a family member serving...sometimes, five, six, seven year old children...I think it puts an undue burden on them."

CHAPTER 5: DISCUSSION

Focus Group

The following six themes were derived from focus group discussion and individual interviews: “Issues for the Patient,” “Interpersonal Issues,” “Issues for the Clinician,” “Alternative Healthcare Models,” and “Professional Structure and Scope.” These themes and verbatim statements from participants are presented.

Issues for Patient. Participants identified several factors that could contribute to difficulty in obtaining quality and appropriate audiologic care, including, geographic isolation, lack of financial resources, and lack of health literacy. All participants had experiences with patients who wished to obtain audiologic care, most commonly amplification, but could not due to the aforementioned barriers.

Geographical Access. “We all know that when you fit a hearing aid, that’s not it. They have to adapt and acclimatize and come back for re-adjustments...If they are at a remote distance that’s maybe more, maybe less densely population and there’s more distance between the recipient and the clinic, that could be a motivating factor to lead someone to decide, ‘I don’t really need this,’ or ‘I don’t really want to go back.’” (Participant I)

Financial Access. “I say, ‘You’ll have to get them [hearing aids] out of pocket,’ and they say, ‘No, I can’t afford that.’ So, they don’t get anything.” (Participant B)

Lack of Health Literacy. “They [patients] do not know what a screening is. They know it’s normal or not normal, it’s not diagnostic. Audiologists don’t have a great understanding, I think, about what the average health literacy ability is of the people we have walking in our doors.” (Participant G)

There are clear parallels between the topics related to patient access raised in the focus group and those patient access issues reported in the literature. Researchers have found that individuals living at or below the federal poverty level are less likely to access hearing aids than individuals with higher incomes (Bainbridge & Ramachandran, 2014). In regards to geographic isolation, older adults living in remote areas have reported difficulty in obtaining healthcare due to problems with transportation, limited healthcare options, and social isolation (Goins et al., 2005). Finally, researchers also found that there is a distinct difference in the language used by audiologists and the health literacy levels of individuals with hearing loss (Nair & Cienkowski, 2010). Low health literacy has been linked with poor health outcomes, declines in physical function, decreased access to health care services, and greater health disparities among racially diverse populations (Bennett et al., 2009, Smith et al., 2015). These issues, alone or in combination, can prevent access to appropriate hearing health care and reduce the rates of hearing aid use.

Interpersonal Issues. Participants discussed the importance of building relationships between the client and clinician in order to provide the best possible hearing healthcare. These relationships are especially crucial for those individuals who lack intrinsic motivation to pursue necessary amplification. Participants described experiences with patients who reported lack of motivation as the primary barrier to hearing aid use, rather than the aforementioned access issues (financial, geographic, health literacy). In some instances, lack of health literacy and lack of

motivation occur together as lack of awareness of the impact of hearing loss may contribute to reduced motivation to pursue treatment.

Lack of Motivation. “I have seen folks for three years, for research, driving an hour from rural Oregon, all the way up to Portland, but they’re not ready to go up one floor and get their hearing aids. I have no idea why...you keep seeing their audiogram...it’s getting poorer and poorer and still, ‘No, I’m fine, I can live with this.’” (Participant C)

Relationship Building. “I’ve created a sense of community and patient relationships, and created the opportunity that when people know if you go there, they’re going to take care of you.” (Participant G)

Davis and colleagues (2007) found that individuals with a significant hearing loss go an average of 10 years before receiving a hearing aid. Research has found self-perception of hearing handicap, expectation of potential benefit, and support from others as non-audiologic determining factors in use of hearing aids (Ng & Loke, 2015). Saunders and colleagues (2012) examined motivating factors in older adults and recommended that clinicians motivate individuals to seek help for their hearing by identifying patient-centered variables that limit help-seeking behaviors and enhance help-seeking behaviors. This supports the findings of the focus group that patient motivation and empowering clinician-patient relationships can be crucial to hearing aid adoption.

Issues for Clinician. Participants discussed factors that limit their ability to provide outreach services outside of the clinic, sustain current ventures, or take on additional responsibilities. While many participants were providing services outside of the clinic, some successfully, a majority found that these ventures were unsuccessful due to time or monetary

commitments involved. These outreach services included performing hearing screenings at health fairs and visiting long term care facilities for educational seminars for staff and residents. They found that the outcomes of these services did not justify the expense and effort put forth.

Ineffective Outreach. “There’s probably some lack of intrinsic motivation as the practitioner...you go to these health fairs and you’re screening hearing and you know maybe 1 out of 50 people will actually inquire further.” (Participant I)

Time Concerns. “Time. That’s always the big thing. The idea of sacrificing patient time in order to do that stuff, or giving up weekends...it’s hard for folks to want to do that on a regular basis.” (Participant B)

Currently, there are no published studies in the literature that examine the prevalence of outreach or outside clinic services provided by audiologist. However, there has been on-going research in this area and a future issue of *Seminars in Hearing* will address interventional audiology. A review of this literature was not available as this issue has not reached publication.

Alternative Healthcare Models. When questioned, none of the participants was able to provide a definition for CHW, nor were they familiar with community health as a whole. When provided with a definition of a CHW and examples of how they have been used in other fields, some participants expressed a better understanding of the term. However, even at the conclusion of the focus group, some participants still had several questions about the roles and responsibilities of CHWs. This is not a surprising finding given that audiologists are often not trained in public health approaches to care. Additionally, hearing loss is not commonly viewed as a public health concern, thus limiting audiologists’ interactions with public health officials. In

order for audiologists to accept the CHW model, they first must be educated about community health and the roles of these workers.

Lack of Awareness of CHW and Community Health. “I’m having a hard time figuring out the role of this profession. Cause it seems like anything in like, it’d be nice to have someone help you along the way who knows you. If we’re asking if this would be helpful in audiology, sure. But it’d be helpful in like, anything.” (Participant F)

CHW Limitations. “If you’re going to have someone walk the patient through the whole process, it just seems impossible to have that many [CHWs].” (Participant A)

Following a discussion of CHWs, participants were asked to name potential roles for CHWs in the field of audiology. They were also asked to name limitations that CHWs might encounter in the field. Table 5 contains potential opportunities and limitations for CHWs in the field of audiology raised by participants during the focus group.

There are several opportunities for CHWs in hearing health care present in the literature. The National Academy of Sciences, Engineering, and Medicine (NASEM) report, *Hearing Health Care for Adults: Priorities for Improving Access and Affordability* (2016), highlights potential use of CHWs in the field audiology in order to increase access, reduce disparities, and reduce cost for consumers, providers, and insurers. This report states that increased awareness, education, and community-based support are integral factors in overcoming the barriers that keep patients from obtaining necessary audiology services. Research has also found that use of CHW in healthcare programs can lead to benefits such as timely referrals and evidenced-based processes and information (McCord et al., 2013). Allowing CHWs to perform some of the

opportunities outlined in Table 5 may improve the audiologist's ability to efficiently treat patients by saving time and money.

Many of the limitations of CHWs raised during the focus group have also been addressed in the literature. Cost was a primary concern among participants. A recent systematic review found that there is currently not sufficient data to assess the cost effectiveness of CHW interventions in the United States (Viswanathan et al., 2010). However, researchers of the Access HEARS pilot study estimated that the total cost of the community-based intervention, including cost of the hearing device, was approximately \$200 per person, representing a cost-effective solution (Nieman et al., 2016).

Insurance reimbursement, another area of concern for participants, is currently limited for services provided by CHWs. However, the ACA recently expanded the ability of the Center for Disease Control and Prevention (CDC) to provide grants for community-based outreach. Additionally, the Centers for Medicare and Medicaid Services (CMS) has introduced a rule that would allow CHWs to receive reimbursement for services as long as these services are recommended by a licensed professional (CMS, 2013). Individual states have also expanded reimbursement for services provided by CHWs through Medicaid. As this healthcare model continues to expand, new rulings and research may provide additional clarity for providers regarding cost and reimbursement.

Table 5
Opportunities and Limitations for CHWs Raised During Focus Group

Opportunity	Limitation
Perform hearing screenings	Liability
Perform counseling and education	Insurance reimbursement
Perform hearing aid orientation	Training and education
Pairing of wireless technology and hearing aids	Compensation and salary
Lead group meetings	Scope of practice
Increase health literacy	Licensure
Act as a cultural liaison	Billing
Perform aural rehabilitation	

Professional Scope and Structure. Participants spent a substantial amount of the focus group discussing issues directly related to the scope and structure of audiology, specifically, the role of audiology assistants, and opportunities and concerns for the field of audiology. Participants discussed recent changes in the field of audiology, including the emergence of personal sound amplification products (PSAPs) and the legislative proposal to create an over-the-counter (OTC) class of hearing aids (CITE Warren & Grassley).

In recent years, reports published by President's Council of Advisors on Science and Technology (PCAST) (2015) and NASEM (2016) have called for more actions towards increasing availability of hearing technology. Both reports called for U.S. Food and Drug Administration (FDA) regulations for a new class of amplification products that would create more accessible and innovative approaches to meeting the communication needs of adults. Some changes in this area have been seen quite rapidly, including the FDA guidance document (2016) that removed of the requirement of medical evaluation by a physician prior to being fit with hearing aids. The Over the Counter Hearing Aid Act of 2016 was recently introduced in the U.S. Congress by Senators Elizabeth Warren and Chuck Grassley. This legislation would support the creation of a category of FDA regulated OTC hearing aids for individuals with mild to moderate hearing loss. The bill was again introduced in Congress in 2017. At the time of the completion of this document, a vote on this legislation had not been held. These potential changes could dramatically shape the future of the profession of audiology and the manner in which services are provided.

Concerns for Field of Audiology. “I think that we are in very changing times. It will be very interesting to see what happens on many levels. Personally, I’m not changing. I’m still

getting medical clearance. The success of how I built my practice is on strong medical interaction.” (Participant G)

“Over-the-counter (OTC) hearing aids is five different conversations in one. What’s best for the people is not always best for the audiologist.” (Participant F).

Health System Factors. Participants expressed a deep level of frustration regarding the complexities of the current U.S. healthcare system and Medicare regulations. Some participants felt that unnecessary Medicare rules and regulations require too much additional time and effort on the part of the clinician and prevent them from providing appropriate audiologic care. Additionally, participants expressed that they have struggled to adapt to recent changes in the healthcare system, specifically, to new policies that accompanied the adoption of the ACA.

Medicare Issues. “It’s very hard to be compliant and the penalties for Medicare fraud are, you go to prison. This isn’t light, but it’s hard to be completely compliant. So, we have a system that doesn’t serve everyone and that’s really difficult.” (Participant G)

Medical System Challenges. “It would be nice, if within my practice, I could provide the continuity that the medical system in our world, that is ever-changing, is lacking...I view audiology as a wonderful springboard for starting to heal what’s wrong with our healthcare system.” (Participant G)

“It [ACA] created a situation where it is illegal not to have [an insurance] policy...yet for most people, the policy premiums were too expensive. And then, our community has so many physicians who won’t accept the plans that they were mandated to purchase.” (Participant G)

These concerns have been echoed in the literature. Researchers have addressed the complexity of the U.S. healthcare system and its inadequate coverage for hearing healthcare services, arguing that more must be done to provide affordable hearing healthcare and expand insurance coverage (McNeal, 2016). Additionally, audiologists have reported difficulty with understanding appropriate Medicare billing codes and procedural requirements (Satterfield, 2013). These findings support the views expressed during the focus group and interviews.

Interviews

While the in-depth interviews provided some new content regarding healthcare system structure, the issues raised during these interviews were largely consistent with those issues raised during the larger focus group discussion.

Participants for the individual interviews were purposefully chosen based on somewhat opposing viewpoints regarding CHW and audiology. As these participants had the opportunity to express themselves in an individual format, issues regarding opportunities and limitations for CHWs were discussed more deeply. However, deeper discussion did not lead to any kind of consensus between opposing viewpoints. Participant G remained enthusiastic and positive regarding use of CHWs in audiology, despite recognition of limitations, while Participant F found it difficult to envision any situation where CHWs would be meaningful additions to the field. There was no opportunity to bridge these divergent opinions and find a more moderate viewpoint.

Positive viewpoint. “I think it would be marvelous to have a whole team of CHWs.”
(Participant G)

Negative viewpoint. “I don’t know why I would hire them [CHW] over an audiology assistant...I don’t anticipate having a for-profit practice and people used for these social issues. I would probably fill that position with someone who could be used more broadly.” (Participant F)

It is impossible to determine whether these opposing opinions were due to difference in work setting, personal philosophy, or involvement in the community; however, these are all factors that could be considered. Moving forward, it is important to recognize that when examining the population of audiologists more broadly, that clinicians may be at the extreme ends of this continuum of opinions. It is crucial to evaluate whether there are opportunities to find common-ground or whether this polarization will continue.

Limitations

There are several limitations associated with this study. The first limitation is related to sample size. This study employed a small sample size of audiologists from one geographic area, which limits the ability to generalize findings. Findings may have differed if the audiologists were drawn from a different geographic location.

Second, due to the nature of the focus group setting, participants may have been hesitant to openly voice opinions or express their disagreement. However, the purpose of the focus group was for participants to share their collective experience; therefore, the benefits outweigh the limitations. Additionally, interviews were used in conjunction with the focus group to solicit opinions in a forum where participants may have felt more willing to share opinions.

Finally, despite multiple recruiting efforts, participants were drawn from the group of alumni of Towson University’s Au.D. program. Most participants were acquaintances and from a

similar educational background. This may have biased responses and reactions or may have affected the topics raised and discussed during the sessions.

Future Directions

This was an exploratory study that investigated a topic that is still in the early stages of testing and implementation. Therefore, it is necessary to expand upon this study and obtain information from a larger, more diverse population. One way to accomplish this would be through a survey that poses questions related to the themes raised during the focus groups and interviews. In this way, it could be determined whether these themes are consistent and resonate strongly across groups.

The interviews conducted in this study suggest that work setting may contribute to opinions regarding use of CHWs; however, it must be determined whether these opinions persist in a larger group. Future studies should examine whether the nature of audiologists' work setting leads to different opinions regarding use of CHWs in audiologic care. Specifically, urban vs. rural work settings should be examined to determine whether these differences change audiologists' perspectives on the utility of CHWs.

Conclusions

The aim of this study was to determine whether use of community health workers (CHWs) is a favorable approach to extending access to hearing health care from the perspective of audiologists. Using a focus group and structured interviews, we examined the factors that may contribute to the success of a CHW model in hearing healthcare. Findings of the study indicate that key stakeholders in the field see both opportunities for CHWs in the field and limitations of this model. Though there was a continuum of opinion regarding this issue, there

are clear divisions between those individuals with a positive perspective of this model and those with a negative perspective. In order to ensure the success of such a model, it is imperative to work with stakeholders and provide education about CHWs and community health so that this model is seen as an asset rather than a threat to the field. Concerns raised during the focus group should be considered in order to develop a model that is appealing, implementable, scalable, and sustainable.

Appendix A

IRB APPROVAL

Office of Sponsored
Programs and Research

Towson University
8000 York Road
Towson, MD 21252-0001

t. 410 704-2236
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APPROVAL NUMBER 1609004955

MEMORANDUM

TO: Meredith Frank

FROM: Institutional Review Board for the Protection of Human
Participants, Elizabeth Katz, Chair

DATE: October 2nd, 2016

RE: Approval of Research Involving the Use of Human Participants,
Approval Number

Thank you for submitting an Application for Approval of Research Involving the Use of Human Participants to the Institutional Review Board for the Protection of Human Participants (IRB) at Towson University. The IRB hereby approves your proposal titled:

Developing a Community Health Model for Delivering Audiology Services

Please note that this approval is granted on the condition that you provide the IRB with the following information and/or documentation:

N/A

If you should encounter any new risks, reactions, or injuries while conducting your research, please notify the IRB. Should your research extend beyond one year in duration, or should there be substantive changes in your research protocol, you will need to submit another application for approval at that time.

Appendix B

FOCUS GROUP GUIDE

Script: Thank you all for coming today. We are having this group discussion because I'm interested in discussing your experiences with access to hearing healthcare. We know that there are people who seek audiologic care but do not receive it. Our discussion will focus on these people and efforts made to reach more people who need services. Please feel free to express any opinions and please respect everyone else's opinion in the group. There is no right or wrong answer during any of this discussion. I'd like you to keep everything we discuss during the group session private, and not share anyone's comments or opinions with your friends or family, and especially not with your co-workers

Does anyone have any questions before we begin?

I'm going to start the audio recording now. Please try to avoid saying each other's names during the discussion so that no one's identity is audio recorded. Is it ok for me to start the recording?

Opening:

- 1) Let's start by going around the group and just stating where you practice (geographically), in what setting, and how long you have been in practice.
- 2) Have you ever had an experience with an individual(s) during your time as an audiologist who needed audiologic services but did not receive them?
- 3) Do you provide any services outside of the clinic? These could include hearing screenings, education, participation in health fairs, etc.
- 4) If no, why haven't you offered these "outside of clinic" services? If yes, have there been any challenges you experienced while providing these services?
- 5) Is anyone familiar with the term community health worker?
 - a. A community health worker (CHW) is a trained public health worker who shares important similarities with the patients he/she serves. These similarities can include language, ethnicity, geographical location, and life experiences. In other fields, CHWs have been used to provide health education and counseling, to help patients navigate the healthcare system, and to perform screenings such as cancer screenings.
- 6) Do you see a role for someone like this in the field of audiology?
- 7) Do you use ancillary staff within your practice?
 - a. Someone to troubleshoot and clean hearing aids/perform hearing tests/a graduate student/hearing aid dispenser?
- 8) As things continue to change within the field, how do you see audiology moving forward? How do you see your practice or work setting moving forward?

I really want to thank you for your time talking about this with me. So, I appreciate your comments on and opinions and hopefully these will help us in our goal of extending audiologic services to all who seek them.

9) Is there anything you would like to share that I haven't asked you about today?

Appendix C

INTERVIEW A GUIDE

- 1) What are the specific roles, if any, that a CHW could play in your practice?
- 2) Can you name or describe any challenges that would be associated with the CHW model?
- 3) What are the potential opportunities associated with the CHW model?
- 4) Describe your typical patient, in terms of socioeconomic status, race, ethnicity, etc.
- 5) Do you encounter a range of patients who speak different languages than you do or who are from a different cultural group?
- 6) Is the language barrier (with these patients) sufficient enough that you are not able to provide the level of care that you would ordinarily like to?
- 7) If you had a CHW as a community liaison, do you think that this would increase your ability to serve people in your community?
- 8) Do you have any thoughts about training or compensation for CHWs?

Appendix D

INTERVIEW B GUIDE

- 1) What are the primary services provided at your practice?
- 2) Can you name or describe any challenges that would be associated with the CHW model?
- 3) What are the specific roles, if any, that a CHW could play in your practice?
- 4) Describe your typical patient, in terms of socioeconomic status, race, ethnicity, etc.
- 5) Do you encounter a range of patients who speak different languages than you do or who are from a different cultural group?
- 6) What are the potential opportunities associated with the CHW model?

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CURRICULUM VITA

Meredith Frank


Educational History

Clinical Doctorate in Audiology

Expected Graduation Date: May 2018

Research in Progress: Developing a Community Health Model for Delivering Audiology Services

Towson University, Towson, MD

Current GPA: 3.90/4.0

Bachelor of Arts

August 2009 to May 2013

University of Maryland, College Park, MD

Overall GPA: 3.5/4.0

Clinical Experience

The River School/Chattering Children: Washington, D.C.

Graduate Clinician (1/2017 to 5/2017)

Supervisor: Sydney Bednarz, Au.D., CCC-A

Chesapeake Hearing Centers

Graduate Clinician (8/2016 to 12/2016)

Supervisor: Courtney Butler, Au.D., CCC-A

Chesapeake ENT

Graduate Clinician (8/2016 to 12/2016)

Supervisor: Lindsay Creed, Au.D., CCC-A

ENTAA Care: Glen Burnie & Annapolis, MD

Graduate Clinician (5/2016 to 8/2016)

Supervisor: Steve Pallett, Au.D., CCC-A & Elizabeth Bevilacqua Au.D., CCC-A

Baltimore County Public Schools

Graduate Clinician (1/2016 to 5/2016)

Supervisor: Kathy Dolan, M.S., CCC-A

Professional Memberships

Student Academy of Audiology (SAA)

Student Member (August 2014-present)

Vice President of SAA Towson University Chapter (June 2015-May 2016)

